

VL

D I Q M T Q T T S S L S A S L G D R V T
gatatccagatgacccagactacatccctccctgtctgcctctctgggagacagagtcacc
I S C R A S Q D I S N Y L N W Y Q Q K P
attagttgcagggcaagtccaggacattagcaattatttaaactgggtatcagcagaaacca
D G T V K L L I Y Y T S I L H S G V P S
gatggaaactgttaaactcctgatctaactacacatcaatattacactcaggagtcacatca
R F S G S G S G T D Y S L T I S N L E Q
aggttcagtggcagtggtctggaacagattattctctcaccattagcaacctggagcaa
E D F A T Y F C Q Q G N T L P W T F G G
gaagattttgccacttacttttgccaacagggttaatacgttccgtggacgttcggtgga
G T K L E I K
ggcaccaagctggaaatcaaa

VH

E V Q L V E S G G G L V K P G G S L K L
gaagtgcagctgggtggagtctgggggaggccttagtgaagcctggagggtccctgaaactc
S C A A S G F A F S I Y D M S W V R Q T
tcctgtgcagcctctggattcgcctttcagtaattctatgacatgtcttgggttcgccagact
P E K R L E W V A Y I S S G G G T T Y Y
ccggagaagaggctggagtgggtcgcatacattactagtggtggtggtaccacctactat
P D T V K G R F T I S R D N A K N T L Y
ccagacactgtgaagggccgattcaccatctccagagacaatgccaagaacaccctgtac
L Q M S S L K S E D T A M Y Y C A R H S
ctgcaaattgagcagctctgaagtctgaggacacagccatgtattactgtgcaagacatagt
G Y G S S Y G V L F A Y W G Q G T L V T
ggctacggtagtagctacggggtttgttttgcttactggggccaagggactctggtcact
V S A
gtctctgca

FIG. 1

Nucleotide/residue numbering shown first followed by Kabat Numbering

| | | | | | | | | | | | | | | |
|----|-----|-----|-----|---|----|----|-----|-----|---|-----|------|-----|-----|---|
| 1 | 0 | --- | --- | - | 49 | 42 | gga | GLY | G | | | | | |
| 2 | 1 | gat | ASP | D | 50 | 43 | act | THR | T | 85 | 78 | ctg | LEU | L |
| 3 | 2 | atc | ILE | I | 51 | 44 | gtt | VAL | V | 86 | 79 | gag | GLU | E |
| 4 | 3 | cag | GLN | Q | 52 | 45 | aaa | LYS | K | 87 | 80 | caa | GLN | Q |
| 5 | 4 | atg | MET | M | 53 | 46 | ctc | LEU | L | 88 | 81 | gaa | GLU | E |
| 6 | 5 | acc | THR | T | 54 | 47 | ctg | LEU | L | 89 | 82 | gat | ASP | D |
| 7 | 6 | cag | GLN | Q | 55 | 48 | atc | ILE | I | 90 | 83 | ttt | PHE | F |
| 8 | 7 | act | THR | T | 56 | 49 | tac | TYR | Y | 91 | 84 | gcc | ALA | A |
| 9 | 8 | aca | THR | T | 57 | 50 | tac | TYR | Y | 92 | 85 | act | THR | T |
| 10 | 9 | tcc | SER | S | 58 | 51 | aca | THR | T | 93 | 86 | tac | TYR | Y |
| 11 | 10 | tcc | SER | S | 59 | 52 | tca | SER | S | 94 | 87 | ttt | PHE | F |
| 12 | 11 | ctg | LEU | L | 60 | 53 | ata | ILE | I | 95 | 88 | tgc | CYS | C |
| 13 | 12 | tct | SER | S | 61 | 54 | tta | LEU | L | 96 | 89 | caa | GLN | Q |
| 14 | 13 | gcc | ALA | A | 62 | 55 | cac | HIS | H | 97 | 90 | cag | GLN | Q |
| 15 | 14 | tct | SER | S | 63 | 56 | tca | SER | S | 98 | 91 | ggg | GLY | G |
| 16 | 15 | ctg | LEU | L | 64 | 57 | gga | GLY | G | 99 | 92 | aat | ASN | N |
| | | | | | 65 | 58 | gtc | VAL | V | 100 | 93 | acg | THR | T |
| | | | | | 66 | 59 | cca | PRO | P | 101 | 94 | ctt | LEU | L |
| | | | | | 67 | 60 | tca | SER | S | 102 | 95 | ccg | PRO | P |
| | | | | | 68 | 61 | agg | ARG | R | 103 | 95A | --- | --- | - |
| | | | | | 69 | 62 | ttc | PHE | F | 104 | 95B | --- | --- | - |
| | | | | | 70 | 63 | agt | SER | S | 105 | 95C | --- | --- | - |
| | | | | | 71 | 64 | ggc | GLY | G | 106 | 95D | --- | --- | - |
| | | | | | 72 | 65 | agt | SER | S | 107 | 95E | --- | --- | - |
| | | | | | 73 | 66 | ggg | GLY | G | 108 | 95F | --- | --- | - |
| | | | | | 74 | 67 | tct | SER | S | 109 | 96 | tgg | TRP | W |
| | | | | | 75 | 68 | gga | GLY | G | 110 | 97 | acg | THR | T |
| | | | | | 76 | 69 | aca | THR | T | 111 | 98 | ttc | PHE | F |
| | | | | | 77 | 70 | gat | ASP | D | 112 | 99 | ggg | GLY | G |
| | | | | | 78 | 71 | tat | TYR | Y | 113 | 100 | gga | GLY | G |
| | | | | | 79 | 72 | tct | SER | S | 114 | 101 | ggc | GLY | G |
| | | | | | 80 | 73 | ctc | LEU | L | 115 | 102 | acc | THR | T |
| | | | | | 81 | 74 | acc | THR | T | 116 | 103 | aag | LYS | K |
| | | | | | 82 | 75 | att | ILE | I | 117 | 104 | ctg | LEU | L |
| | | | | | 83 | 76 | agc | SER | S | 118 | 105 | gaa | GLU | E |
| | | | | | 84 | 77 | aac | ASN | N | 119 | 106 | atc | ILE | I |
| | | | | | | | | | | 120 | 106A | --- | --- | - |
| | | | | | | | | | | 121 | 107 | aaa | LYS | K |
| | | | | | | | | | | 122 | 108 | | | |
| | | | | | | | | | | 123 | 109 | . | | |
| 17 | 16 | gga | GLY | G | | | | | | | | | | |
| 18 | 17 | gac | ASP | D | | | | | | | | | | |
| 19 | 18 | aga | ARG | R | | | | | | | | | | |
| 20 | 19 | gtc | VAL | V | | | | | | | | | | |
| 21 | 20 | acc | THR | T | | | | | | | | | | |
| 22 | 21 | att | ILE | I | | | | | | | | | | |
| 23 | 22 | agt | SER | S | | | | | | | | | | |
| 24 | 23 | tgc | CYS | C | | | | | | | | | | |
| 25 | 24 | agg | ARG | R | | | | | | | | | | |
| 26 | 25 | gca | ALA | A | | | | | | | | | | |
| 27 | 26 | agt | SER | S | | | | | | | | | | |
| 28 | 27 | cag | GLN | Q | | | | | | | | | | |
| 29 | 27A | --- | --- | - | | | | | | | | | | |
| 30 | 27B | --- | --- | - | | | | | | | | | | |
| 31 | 27C | --- | --- | - | | | | | | | | | | |
| 32 | 27D | --- | --- | - | | | | | | | | | | |
| 33 | 27E | --- | --- | - | | | | | | | | | | |
| 34 | 27F | --- | --- | - | | | | | | | | | | |
| 35 | 28 | gac | ASP | D | | | | | | | | | | |
| 36 | 29 | att | ILE | I | | | | | | | | | | |
| 37 | 30 | agc | SER | S | | | | | | | | | | |
| 38 | 31 | aat | ASN | N | | | | | | | | | | |
| 39 | 32 | tat | TYR | Y | | | | | | | | | | |
| 40 | 33 | tta | LEU | L | | | | | | | | | | |
| 41 | 34 | aac | ASN | N | | | | | | | | | | |
| 42 | 35 | tgg | TRP | W | | | | | | | | | | |
| 43 | 36 | tat | TYR | Y | | | | | | | | | | |
| 44 | 37 | cag | GLN | Q | | | | | | | | | | |
| 45 | 38 | cag | GLN | Q | | | | | | | | | | |
| 46 | 39 | aaa | LYS | K | | | | | | | | | | |
| 47 | 40 | cca | PRO | P | | | | | | | | | | |
| 48 | 41 | gat | ASP | D | | | | | | | | | | |

FIG. 2

Nucleotide/residue numbering shown first followed by Kabat Numbering

| | | | | | | | | | | | | | | |
|----|-----|-----|-----|---|----|-----|-----|-----|---|-----|------|-----|-----|---|
| 1 | 0 | --- | --- | - | 49 | 46 | gag | GLU | E | 85 | 79 | tac | TYR | Y |
| 2 | 1 | gaa | GLU | E | 50 | 47 | tgg | TRP | W | 86 | 80 | ctg | LEU | L |
| 3 | 2 | gtg | VAL | V | 51 | 48 | gtc | VAL | V | 87 | 81 | caa | GLN | Q |
| 4 | 3 | cag | GLN | Q | 52 | 49 | gca | ALA | A | 88 | 82 | atg | MET | M |
| 5 | 4 | ctg | LEU | L | 53 | 50 | tac | TYR | Y | 89 | 82A | agc | SER | S |
| 6 | 5 | gtg | VAL | V | 54 | 51 | att | ILE | I | 90 | 82B | agt | SER | S |
| 7 | 6 | gag | GLU | E | 55 | 52 | agt | SER | S | 91 | 82C | ctg | LEU | L |
| 8 | 7 | tct | SER | S | 56 | 52A | agt | SER | S | 92 | 83 | aag | LYS | K |
| 9 | 8 | ggg | GLY | G | 57 | 52B | --- | --- | - | 93 | 84 | tct | SER | S |
| 10 | 9 | gga | GLY | G | 58 | 52C | --- | --- | - | 94 | 85 | gag | GLU | E |
| 11 | 10 | ggc | GLY | G | 59 | 53 | ggt | GLY | G | 95 | 86 | gac | ASP | D |
| 12 | 11 | tta | LEU | L | 60 | 54 | ggt | GLY | G | 96 | 87 | aca | THR | T |
| 13 | 12 | gtg | VAL | V | 61 | 55 | ggt | GLY | G | 97 | 88 | gcc | ALA | A |
| 14 | 13 | aag | LYS | K | 62 | 56 | acc | THR | T | 98 | 89 | atg | MET | M |
| 15 | 14 | cct | PRO | P | 63 | 57 | acc | THR | T | 99 | 90 | tat | TYR | Y |
| 16 | 15 | gga | GLY | G | 64 | 58 | tac | TYR | Y | 100 | 91 | tac | TYR | Y |
| 17 | 16 | ggg | GLY | G | 65 | 59 | tat | TYR | Y | 101 | 92 | tgt | CYS | C |
| 18 | 17 | tcc | SER | S | 66 | 60 | cca | PRO | P | 102 | 93 | gca | ALA | A |
| 19 | 18 | ctg | LEU | L | 67 | 61 | gac | ASP | D | 103 | 94 | aga | ARG | R |
| 20 | 19 | aaa | LYS | K | 68 | 62 | act | THR | T | 104 | 95 | cat | HIS | H |
| 21 | 20 | ctc | LEU | L | 69 | 63 | gtg | VAL | V | 105 | 96 | agt | SER | S |
| 22 | 21 | tcc | SER | S | 70 | 64 | aag | LYS | K | 106 | 97 | ggc | GLY | G |
| 23 | 22 | tgt | CYS | C | 71 | 65 | ggc | GLY | G | 107 | 98 | tac | TYR | Y |
| 24 | 23 | gca | ALA | A | 72 | 66 | cga | ARG | R | 108 | 99 | ggt | GLY | G |
| 25 | 24 | gcc | ALA | A | 73 | 67 | ttc | PHE | F | 109 | 100 | agt | SER | S |
| 26 | 25 | tct | SER | S | 74 | 68 | acc | THR | T | 110 | 100A | agc | SER | S |
| 27 | 26 | gga | GLY | G | 75 | 69 | atc | ILE | I | 111 | 100B | tac | TYR | Y |
| 28 | 27 | ttc | PHE | F | 76 | 70 | tcc | SER | S | 112 | 100C | ggg | GLY | G |
| 29 | 28 | gct | ALA | A | 77 | 71 | aga | ARG | R | 113 | 100D | gtt | VAL | V |
| 30 | 29 | ttc | PHE | F | 78 | 72 | gac | ASP | D | 114 | 100E | ttg | LEU | L |
| 31 | 30 | agt | SER | S | 79 | 73 | aat | ASN | N | 115 | 100F | --- | --- | - |
| 32 | 31 | atc | ILE | I | 80 | 74 | gcc | ALA | A | 116 | 100G | --- | --- | - |
| 33 | 32 | tat | TYR | Y | 81 | 75 | aag | LYS | K | 117 | 100H | --- | --- | - |
| 34 | 33 | gac | ASP | D | 82 | 76 | aac | ASN | N | 118 | 100I | --- | --- | - |
| 35 | 34 | atg | MET | M | 83 | 77 | acc | THR | T | 119 | 100J | --- | --- | - |
| 36 | 35 | tct | SER | S | 84 | 78 | ctg | LEU | L | 120 | 100K | ttt | PHE | F |
| 37 | 35A | --- | --- | - | | | | | | 121 | 101 | gct | ALA | A |
| 38 | 35B | --- | --- | - | | | | | | 122 | 102 | tac | TYR | Y |
| 39 | 36 | tgg | TRP | W | | | | | | 123 | 103 | tgg | TRP | W |
| 40 | 37 | gtt | VAL | V | | | | | | 124 | 104 | ggc | GLY | G |
| 41 | 38 | cgc | ARG | R | | | | | | 125 | 105 | caa | GLN | Q |
| 42 | 39 | cag | GLN | Q | | | | | | 126 | 106 | ggg | GLY | G |
| 43 | 40 | act | THR | T | | | | | | 127 | 107 | act | THR | T |
| 44 | 41 | ccg | PRO | P | | | | | | 128 | 108 | ctg | LEU | L |
| 45 | 42 | gag | GLU | E | | | | | | 129 | 109 | gtc | VAL | V |
| 46 | 43 | aag | LYS | K | | | | | | 130 | 110 | act | THR | T |
| 47 | 44 | agg | ARG | R | | | | | | 131 | 111 | gtc | VAL | V |
| 48 | 45 | ctg | LEU | L | | | | | | 132 | 112 | tct | SER | S |
| | | | | | | | | | | 133 | 113 | gca | ALA | A |

FIG. 3

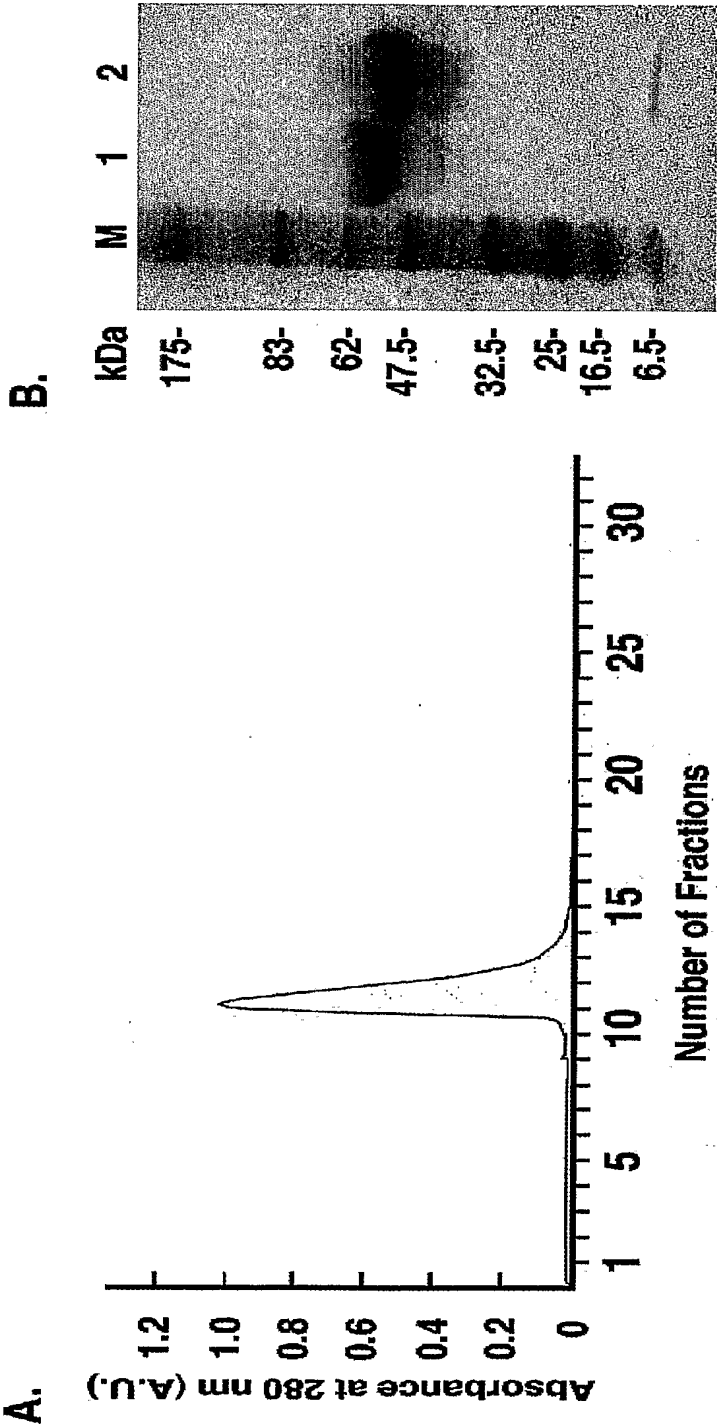


FIG. 4

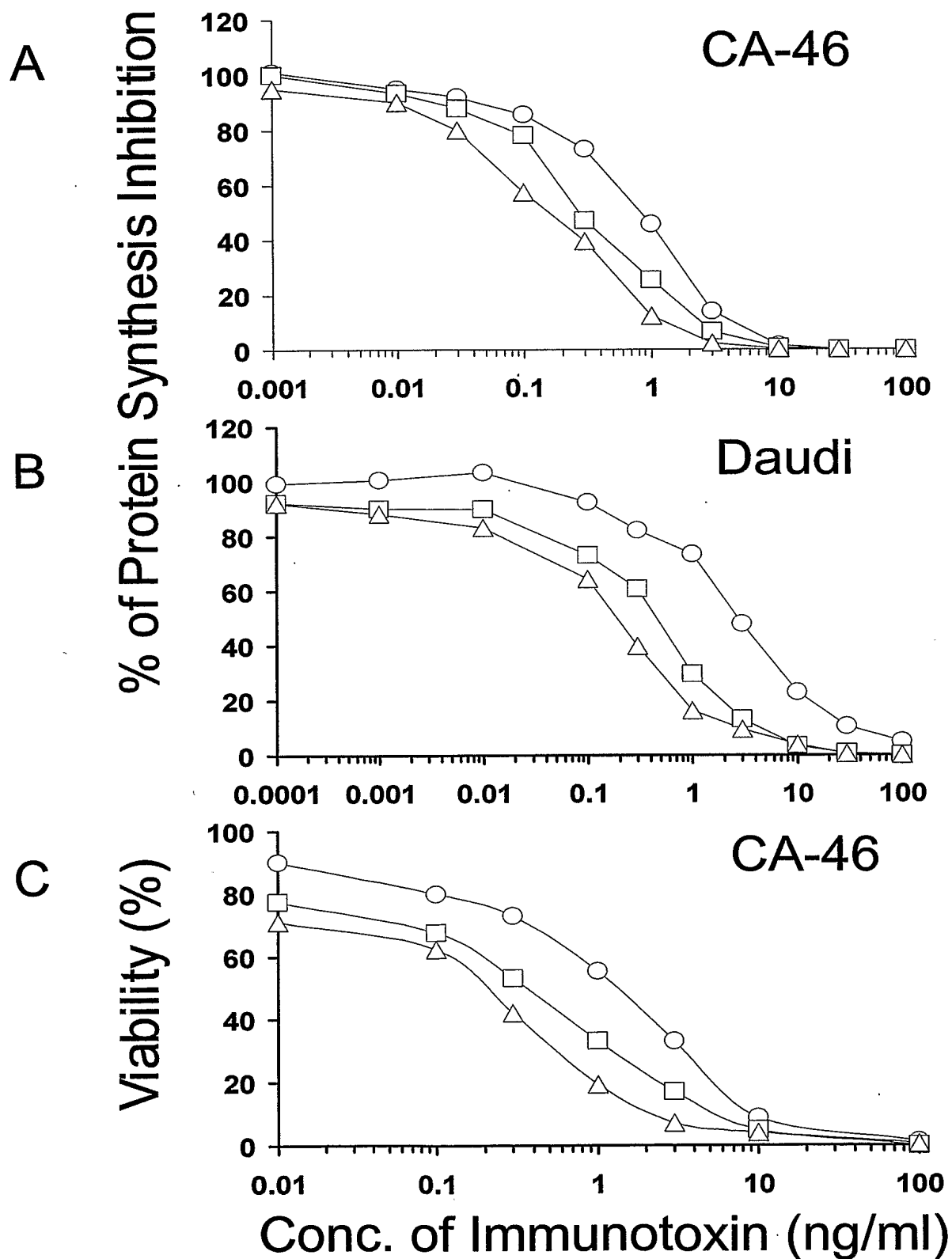


FIG. 5

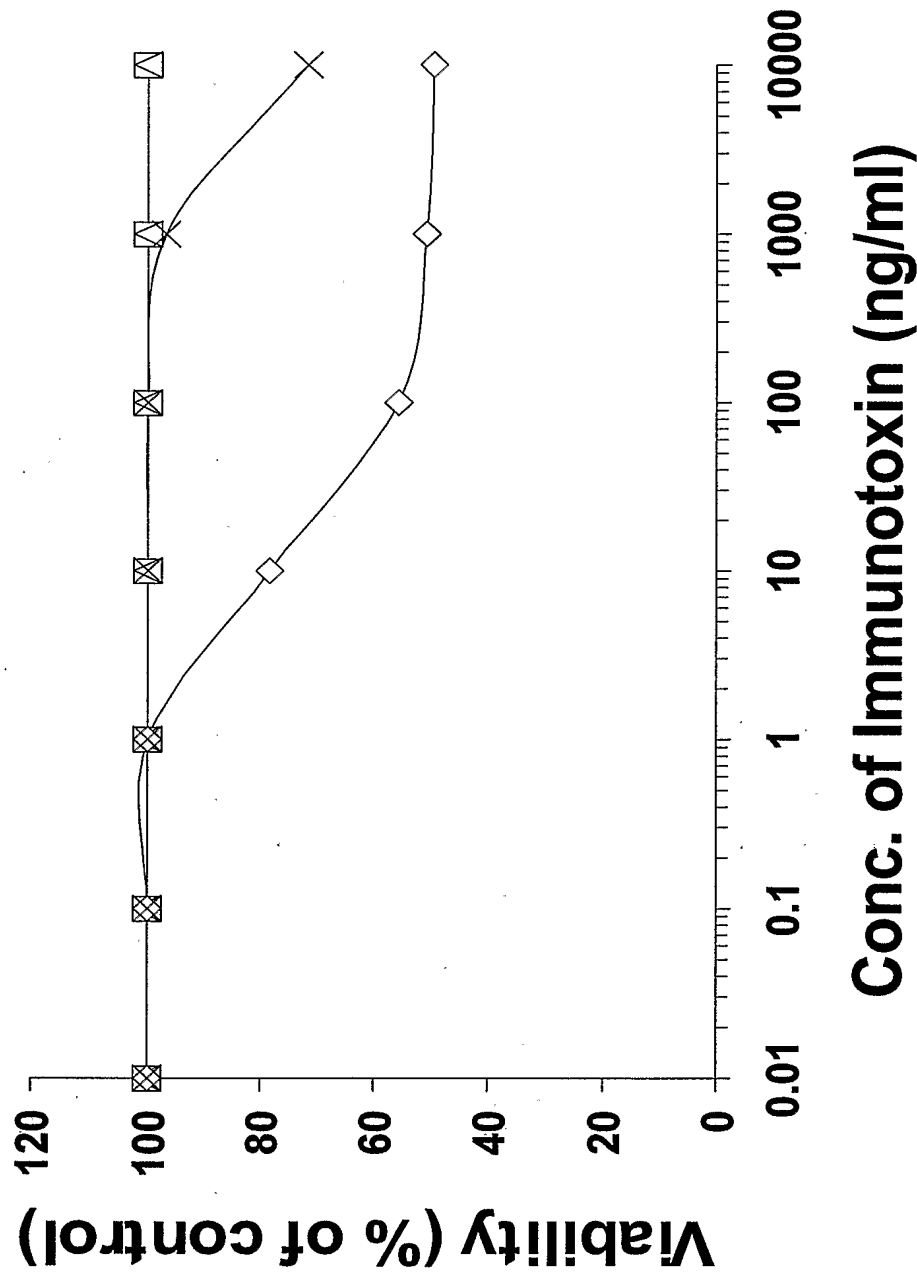


FIG. 6

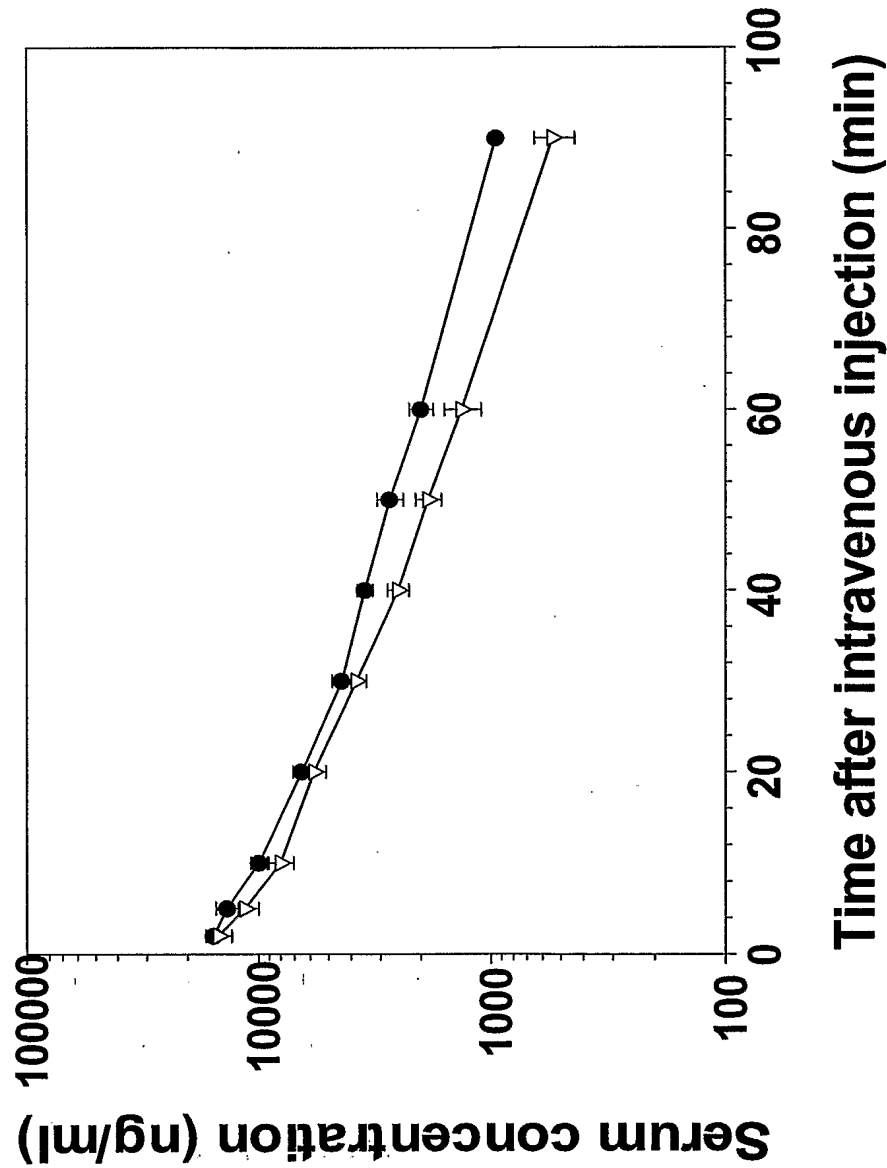
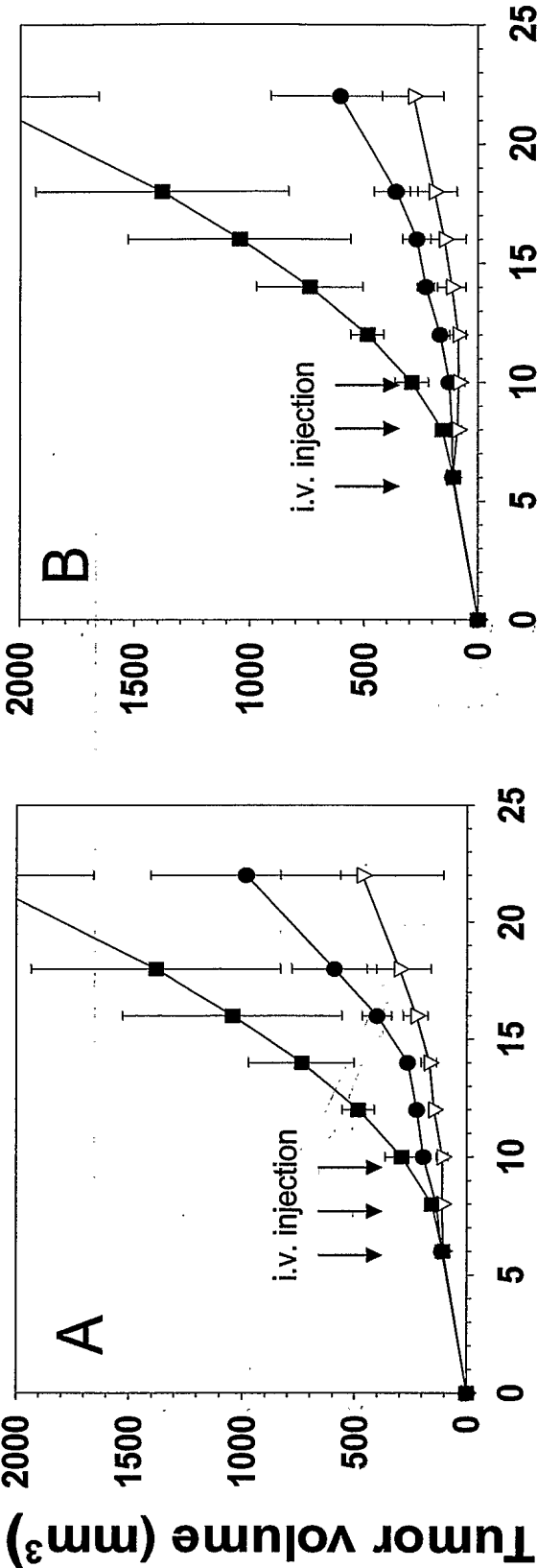


FIG. 7



Days after CA46 tumor injection

FIG. 8